

Waste Storage Pond

Alabama Guide Sheet No. AL 313A



Definition

A waste storage pond is an earthen waste impoundment that temporarily stores organic wastes such as manure and wastewater.

General Information

Storage ponds must be located where the geology will not cause potential problems. Sites with sandy soils, high water tables, or areas in karst (limestone) topography will require extensive site evaluations.

Since storage ponds are usually odorous, they should be properly located considering prevailing winds, topography, vegetation, and neighbors in order to minimize odors.

Storage ponds are designed to store the manures, wastewater, sludge, rainfall, and other wastes accumulated during a design storage period until such time that the entire storage pond contents can be properly utilized as fertilizer by agitating and pumping. Typical design storage periods are 90, 120, or 180 days. Storage ponds are different from waste treatment lagoons in that they are sized to only provide storage and do not contain treatment volume. Storage ponds are emptied more than once a year according to the design storage period. Since very little waste treatment occurs in a storage pond, the nutrient content of the waste from storage ponds is higher than that from lagoons. Therefore, more land area is required to use the waste as fertilizer.

Heavy solid waste materials can be difficult to agitate and remove in a liquid slurry form. Whenever possible, these solids should be separated from the manure and kept from entering the storage pond. The separated solids can be composted and land applied as fertilizer.

Liners in the storage pond are designed to reduce seepage from the pond to an acceptable level or less. Liners can be compacted with on-site clayey material if available or additives can be mixed with the soil to achieve the designed results. In extreme cases, synthetic or concrete liners may be required to restrict seepage. Provisions must be made to protect the constructed liner to ensure its integrity is not compromised.

The wastes should be maintained by pumping at a level below the maximum liquid elevation as marked by a permanent marker placed in the storage pond.

Storage ponds are designed with enough storage and freeboard to prevent the wastes from overtopping the embankment during rainfall events of 25-year, 24-hour or less, as long as the storage pond is properly operated and maintained.

Storage ponds are more odorous than lagoons. Strong consideration should be given to covering the pond with a biological or synthetic cover to help reduce or eliminate odors. Storage ponds for dairy

operations sometime develop a natural crust that serves the same purpose. Synthetic covers can also be used to trap gases that can be utilized as a potential energy source.

Operation and Maintenance

Waste storage pond construction must be certified by qualified personnel that the facility was constructed according to the designed plans and specifications.

New storage pond embankments are to be properly vegetated. The interior slopes are to be either vegetated, mulched, or mechanically protected to prevent erosion of the liner.

Storage ponds should be fenced and warning signs posted to ensure safety.

New storage ponds started during the summer months may need fresh water added prior to the introduction of manures to help minimize odors.

If the use of an additive for odor control, emission control, sludge reduction, or biological activity enhancement is planned for the storage pond, the additive should be reviewed and accepted for use by the Alabama Department of Environmental Management (ADEM) prior to use. If not on an approval list, a Material Safety Data Sheet (MSDS) and an aquatic toxicity testing report for the additive should be submitted to ADEM for approval.

All wastes removed from the storage pond shall be utilized as fertilizer at locations, times, rates, and

volumes in accordance with a nutrient management plan that meets or exceeds NRCS technical standards and guidelines. Records shall be kept of the amount of wastes applied, location and acres where applied, and the date waste was applied. Since the storage pond wastes can be odorous, consideration should be given to incorporating or injecting the wastes into the soil in order to minimize odor.

The storage pond shall be completely pumped out by the end of each storage period. This allows for all of the planned storage during the next storage period.

The vegetation on the embankment should be routinely mowed. Trees and shrubs should not be allowed to grow within a potential distance of their root zones to the embankment.

Waste storage ponds must have routine inspection to ensure that all components are operating as designed.

References

NRCS AL Conservation Practice Standard
Code – 313, Waste Storage Facility
Code – 634, Manure Transfer
Code – 590, Nutrient Management

AL NRCS Guide Sheets
AL 590, Application Distances for Applying
Animal Manure and Organic By-Products
AL 312, Odor Control for Animal Feeding
Operations
AL 634, Wastewater Irrigation

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